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A New Model for Accelerating the Commercialisation of Graphene and other 2D Materials Research from Universities

A vital stage in the adoption of a new material or technology is the creation of small entrepreneurial start-up businesses which are able to translate academic research into commercial products. To facilitate and drive the creation of these spin-out businesses and joint venture partnerships, The University of Manchester in the UK has set up a wholly owned subsidiary, Graphene Enabled Systems Ltd (GES). This organisation acts a facilitator - identifying and pre-qualifying deal opportunities, manufacturing high quality product demonstrators and putting together business plans for the potential spin-outs or joint-ventures.

Identifying and Evaluating Opportunities
GES has a process for identifying and evaluating new project ideas.
In the first part of the process new opportunities enter the 'funnel' from a variety of internal and external sources.

These ideas are then evaluated and empirically scored based on their commercial viability, competitive advantages, technical/operational feasibility and the strength of the University's IPs.

If an opportunity is considered suitable for a short to medium commercial exploitation and is potentially attractive to investors they enter a highly structured new product development(NPD) process.

As with any NPD process, when a project arrives at a specific 'mile-stone' or a gate it is formally reviewed and will not receive additional resource unless it has met the minimum criteria to move to the next stage of the development process.

This formal evaluation and gating process limits risks and increases the chance of a spin-out or joint venture being commercially and financially successful. GES regularly reviews the status of each project, highlighting any areas of concern that may result in a project being i) abandoned ii) recycled iii) delayed.

Outputs to Create Economic Impact
Projects that have been successfully passed through the GES evaluation and NPD process will have the following outputs:
- Comprehensive Business Plan – This will be structured in such a way to ensure the opportunity has undergone a process of due diligence.
- High-Quality Product Demonstrators – These will be designed and built to show the commercial viability of the technology and how it can be industrialised. These demonstrators (not prototypes) are invaluable tools for attracting commercial interest.
- Short Investment Prospectus – Key synthetic elements from the business plan and a description of the investment opportunity.

Graphene Enabled Systems is now successfully applying this model in the UK and is exploring how to collaborate with other Universities and industrial partners to proliferate this simple but effective model.

Spin-outs

Atomic Mechanics Ltd – Design, develop, manufacture and sale of a range of proprietary pressure sensors and human machine touch interfaces based on graphene-polymer membranes.
Grafine Ltd – Provide scientific and technical consultancy services to the multi-billion pound global elastomer industry.
Graphene Water Technologies Ltd – Develop a range of new, graphene enhanced membranes to clean polluted water and brines.
Laser Graphene Ltd – Manufacture equipment that will enable the 'Laser Direct Writing' of conductive tracks on low temperature substrates.
Riptron Ltd – Develop graphene based sensors to measure low concentrations of VOCs.

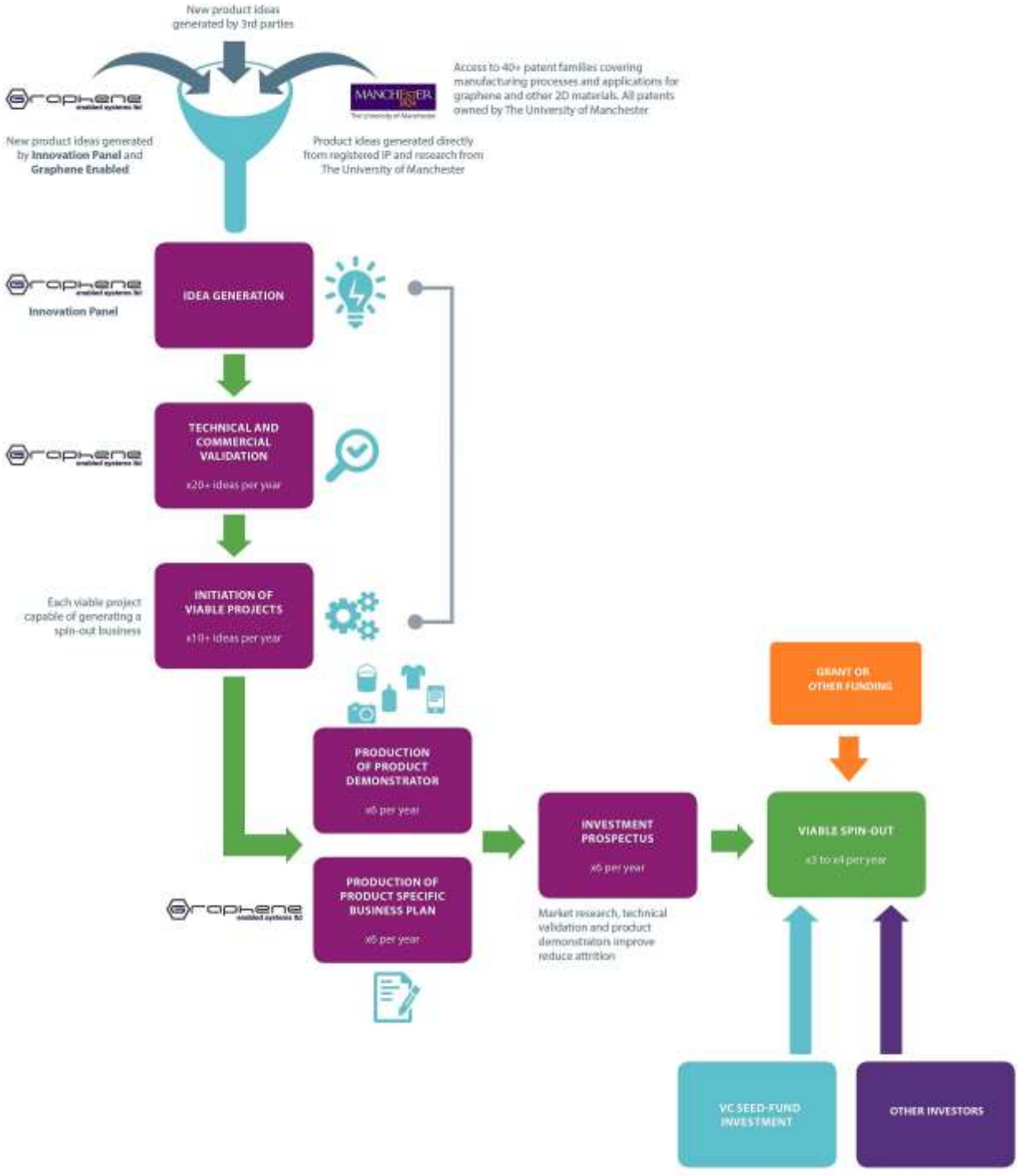

Figure 1: Flow Chart of Technology Commercialization Process